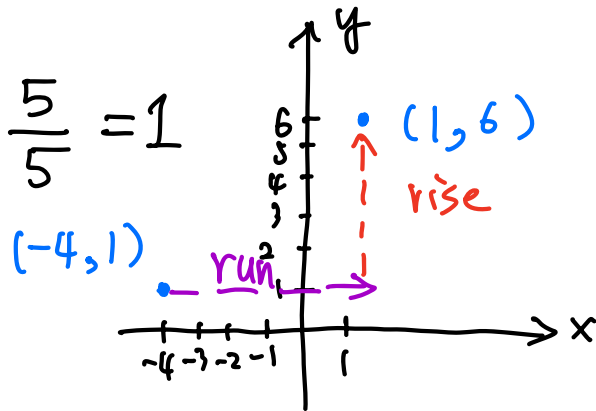Name: _____

- This quiz consists of **2** questions, each worth 5 points for a total of **10** points.

- You have **20** minutes to complete the quiz.

- Show all work and justify your answers.

- Scientific calculators are allowed.

- Wishing you success.

1. Find the equation of a line that passes through the points (-4,1) and (1,6).

① Slope of a line

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{6-1}{1-(-4)} = \frac{5}{5} = 1$$

(-4,1)

(1,6)

rise

run

② $y = (\text{slope}) \cdot x + \underline{?}$

$$y = 1 \cdot x + ?$$

using (1,6), when $x=1$, $y=6$

$$6 = 1 \cdot 1 + ? \implies ? = 5$$

$\implies$ the equation of the line $y = x + 5$

Please turn over.

2. Find the slope, y-intercept, and graph of $2y = -3x + 8$.

① $y = (\text{slope}) \cdot x + c$

$\dfrac{2y}{2} = \dfrac{-3x+8}{2} \Rightarrow y = \dfrac{-3x}{2} + \dfrac{8}{2}$

$\Rightarrow y = -\dfrac{3}{2}x + 4$

slope $= -\dfrac{3}{2}$
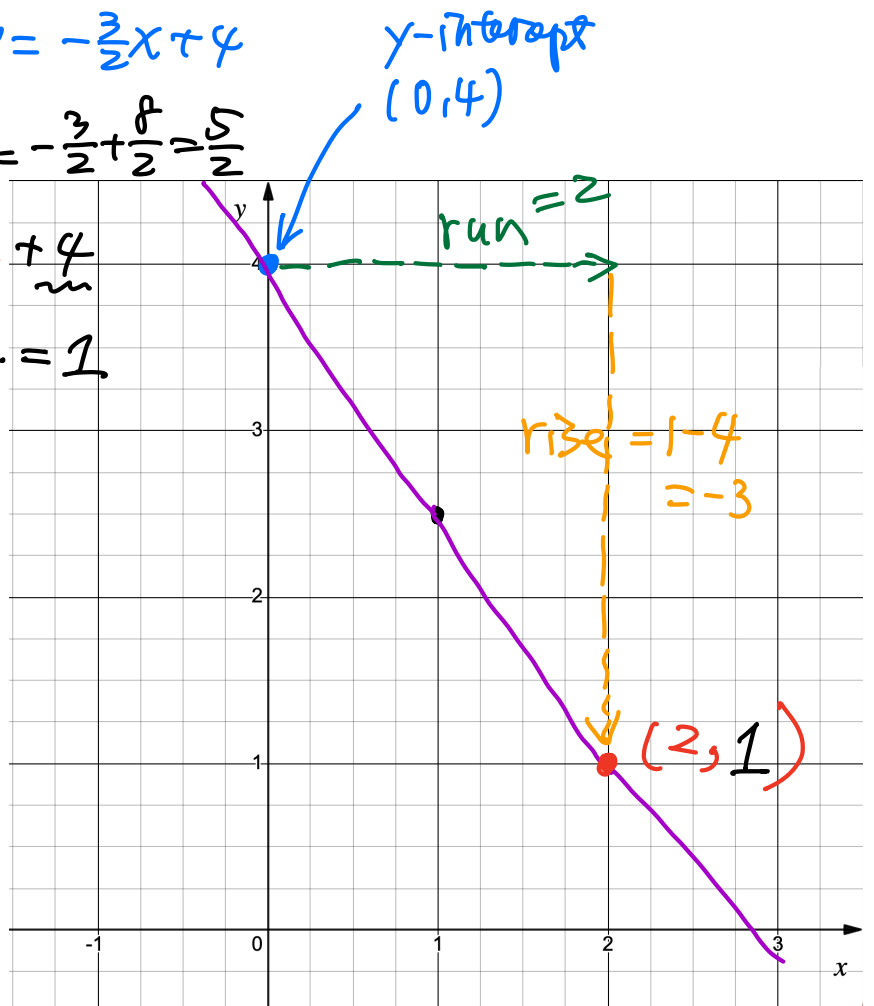
y-intercept : $(0,4)$

(when $x=0$, what is y ?)

Another point from $y = -\dfrac{3}{2}x + 4$

when $x=1$, $y = -\dfrac{3}{2} + 4 = -\dfrac{3}{2} + \dfrac{8}{2} = \dfrac{5}{2}$

$x=2$, $y = -\dfrac{3}{2} \times \dfrac{2}{1} + 4$

$= -3 + 4 = 1$

$-\dfrac{3}{2}$

y-intercept $(0,4)$

run $= 2$

rise $= 1-4$

$= -3$

$(2,1)$

3. Find an equation of a line that is perpendicular to $y = -\frac{3}{2}x + 4$ and passes $(2, 1)$

slope of $y = -\frac{3}{2}x + 4 \Rightarrow -\frac{3}{2}$

slope of the line which is perpendicular to $y = -\frac{3}{2}x + 4 \Rightarrow$

$(\text{slope 1}) \times (\text{slope 2}) = -1$

$$\frac{-\frac{3}{2} \cdot \boxed{\text{slope 2}}}{-\frac{3}{2}} = \frac{-1}{-\frac{3}{2}}$$

$$\boxed{\text{slope 2}} = -1 \cdot \left(-\frac{2}{3}\right) = \frac{2}{3}$$